EXPERIMENT NO. 4

TITLE: Electronic Modelling & Simulation of diode/BJT/JFET characteristics

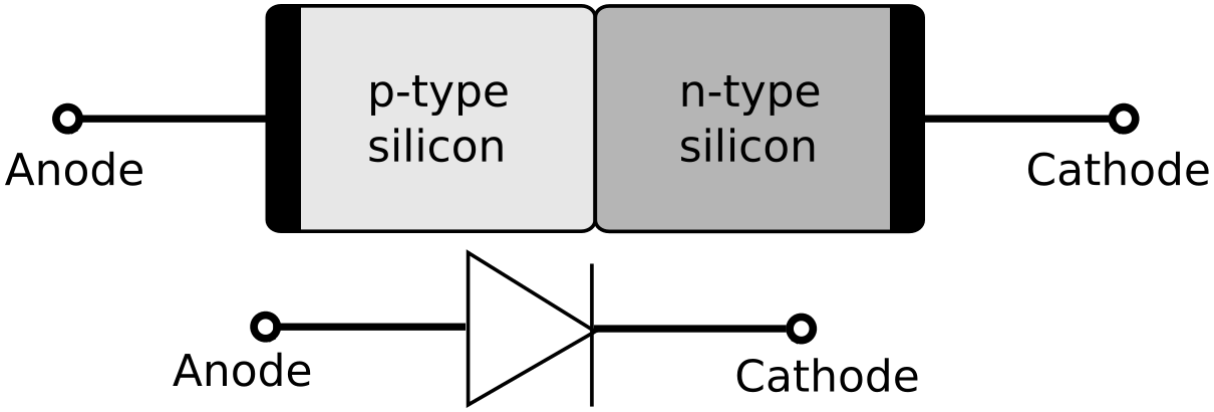
AIM:

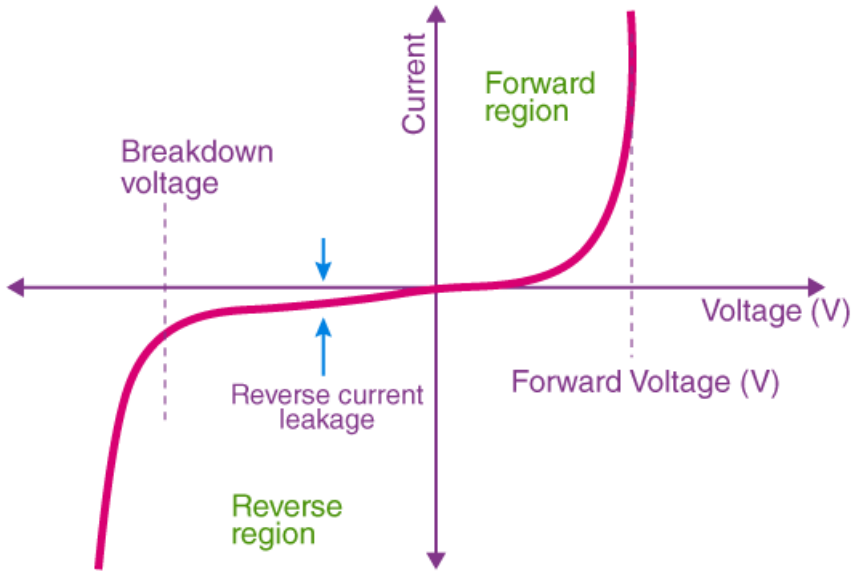
1. To design and simulate the circuit using Multisim simulation software/tool.
2. To plot the characteristics of diode/BJT/JFET/ and display on the oscilloscope

APPARATUS: Multisim software, PN junction diode 1N400G, BJT 2N2222A, JFET, MOSFET

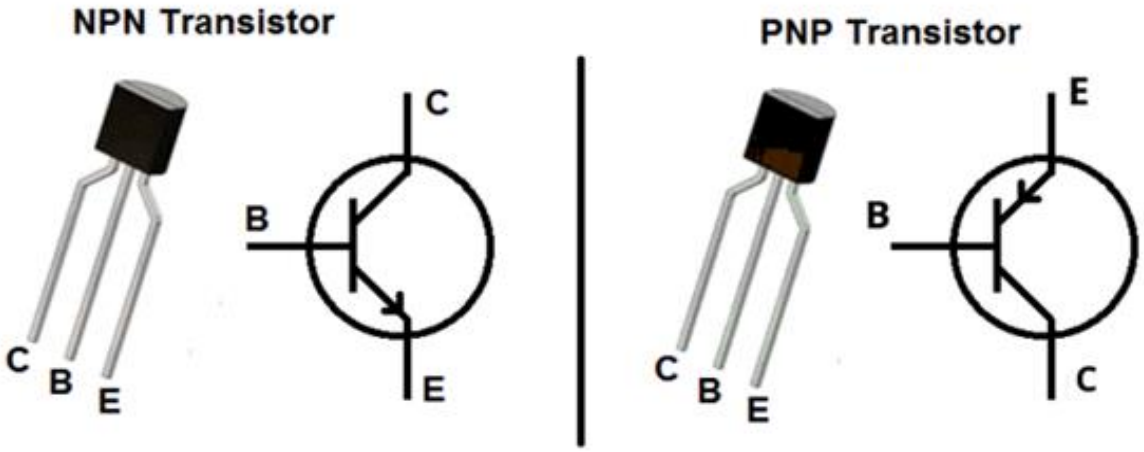
THEORY:

Diode: It is formed by joining P type semiconductor and N type semiconductor. A junction is formed between P type and N type semiconductor on joining them. An electrode is taken from P region called anode and another electrode is taken from N region called cathode. When no voltage is applied to the diode it is called unbiased diode.





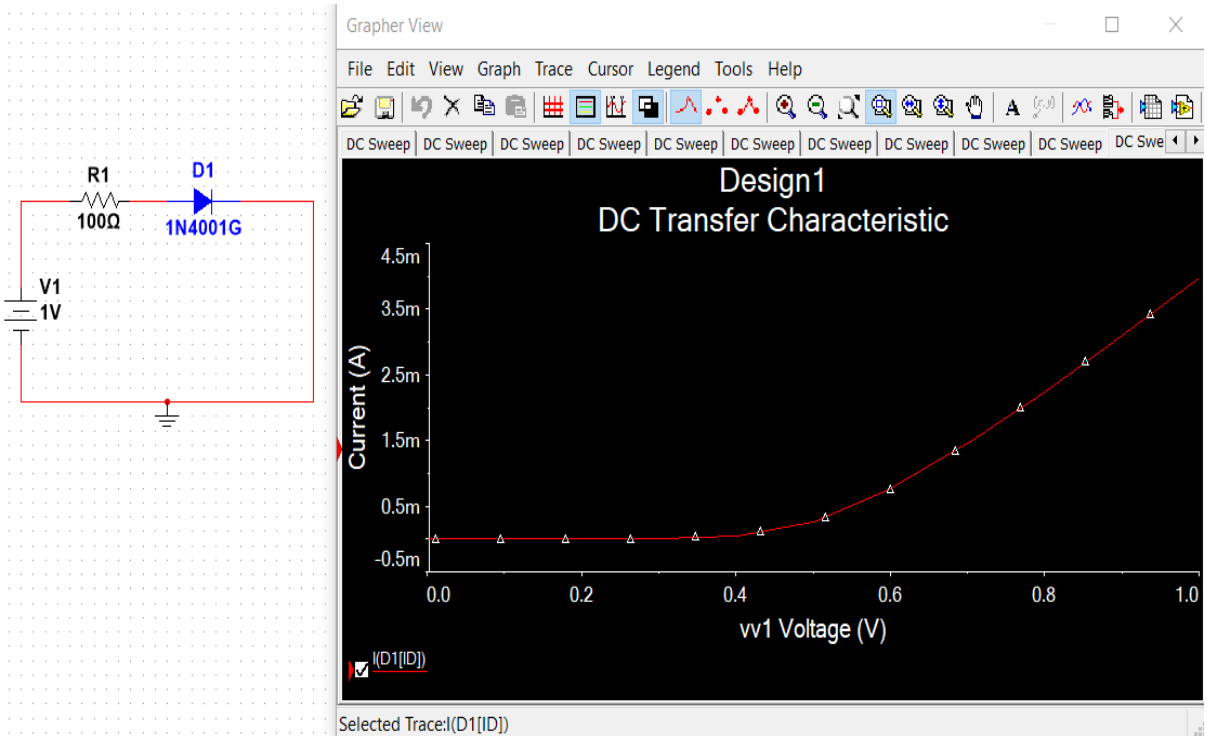
BJT: Transistor is a three terminal device: base ,emitter and collector. Transistor can be operated in three configurations: common base, common emitter and common collector. Transistors are mainly used for amplification and switching applications.

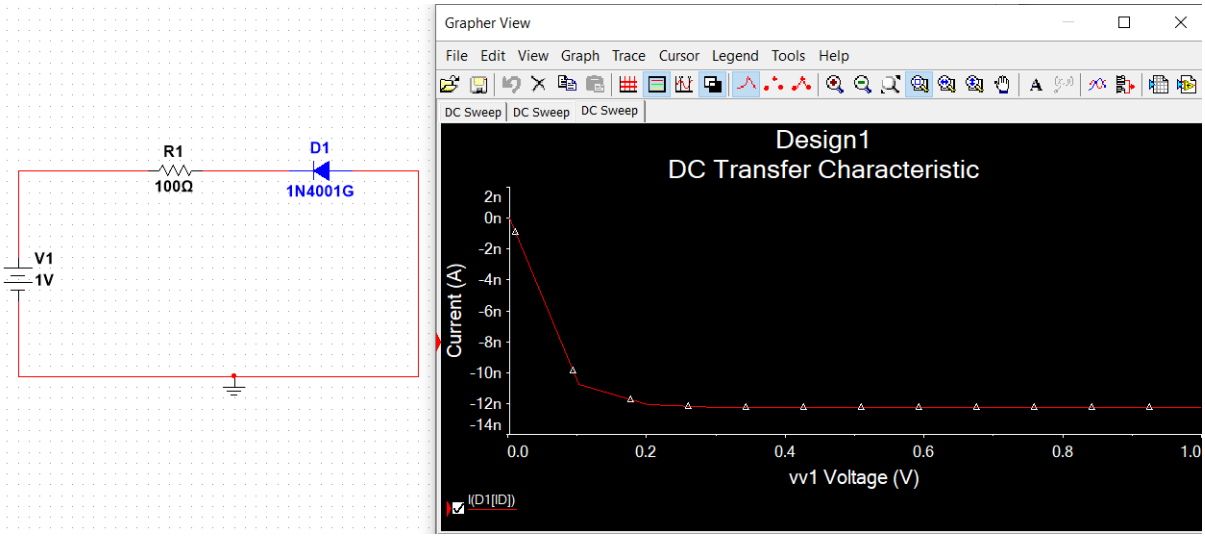


Input Characteristics: The graph plotted between input voltage Vbe and input current Ib for constant value of output voltage Vce.

Output Characteristics: The graph plotted between output voltage Vce and output current Ic for constant value of input current Ib.

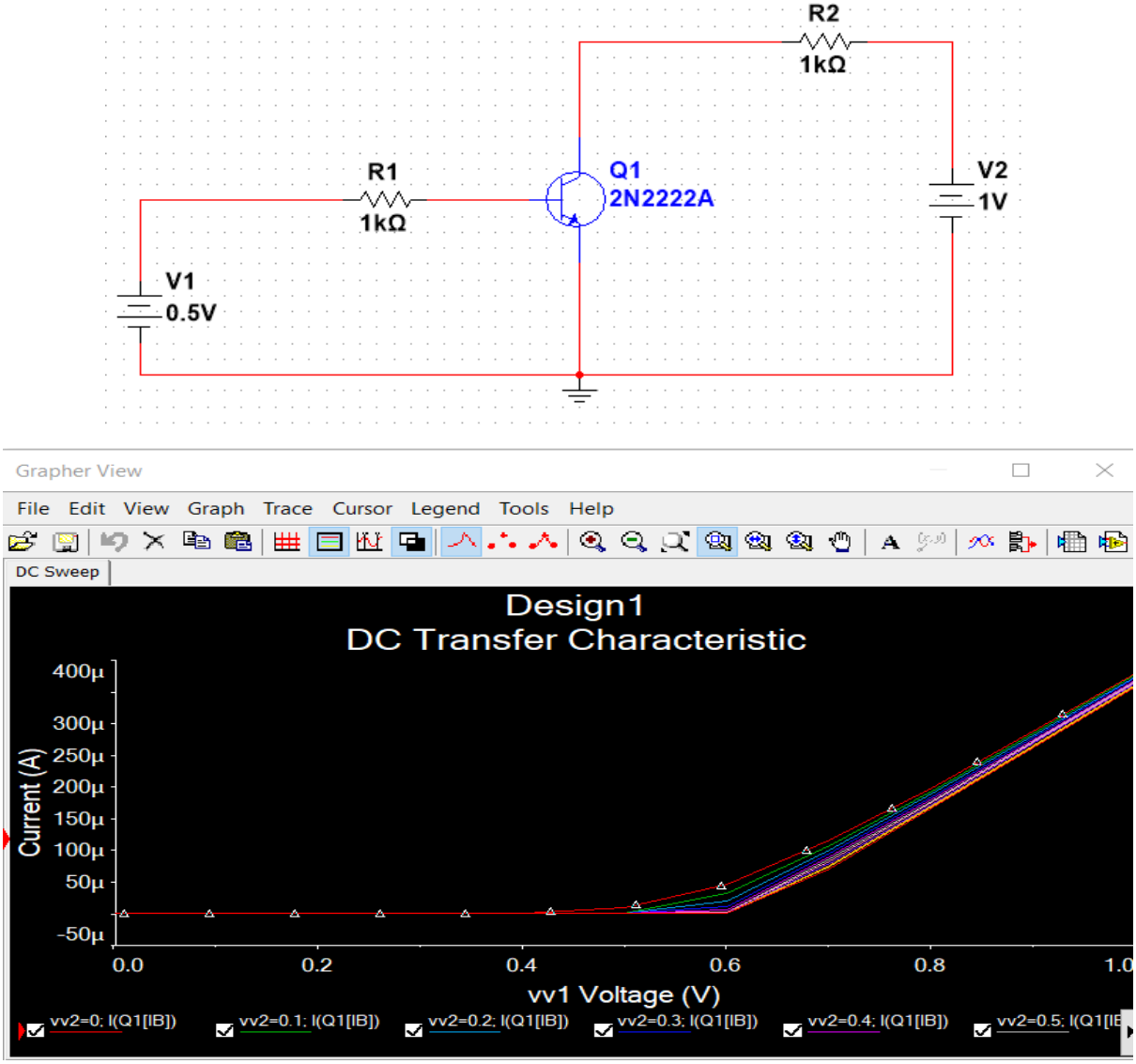
SIMULATION RESULTS:



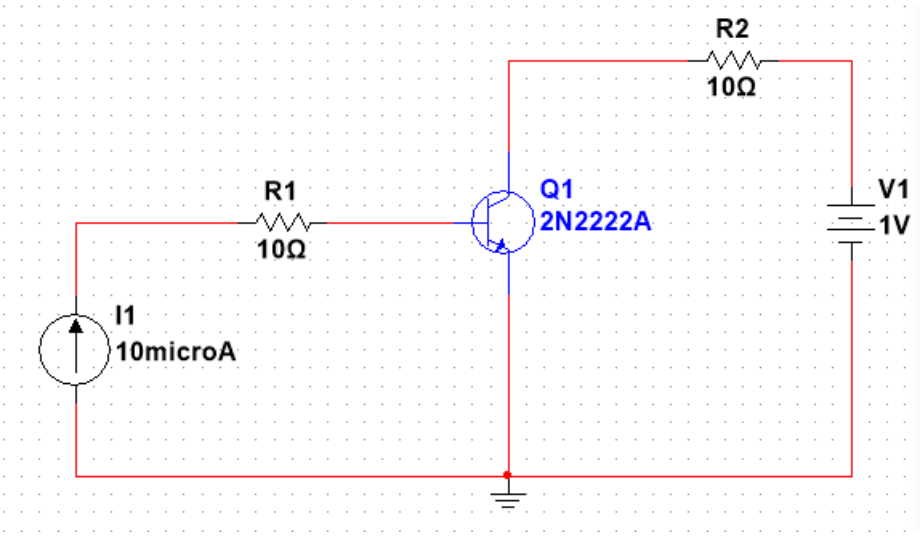


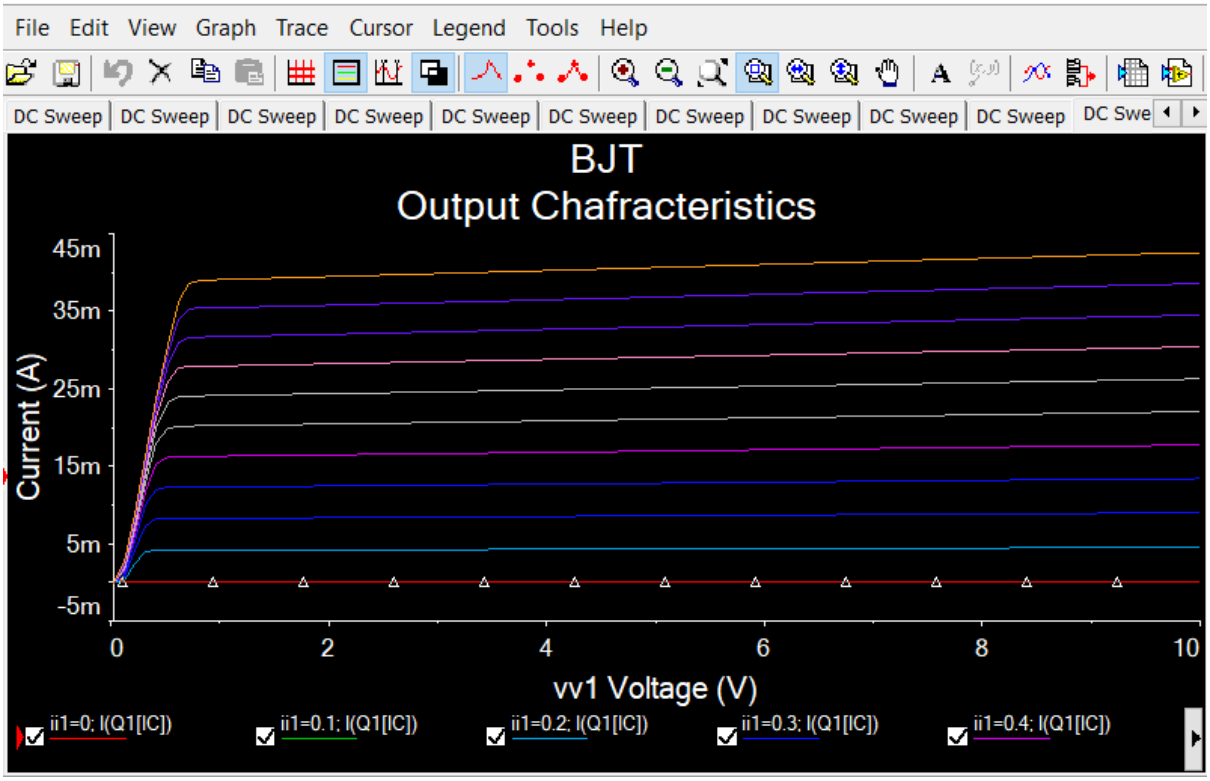
BJT Characteristics

Input Characteristics:



Output Characteristics:





ASSIGNMENT QUESTION:

Q. To model, design and simulate a JFET circuit. Show the simulation and take printout of the simulation circuit and waveform.

Q. Also describe the construction, working and characteristics of a JFET.